Course Syllabus

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Students in the course should check the course Announcements and Piazza Forums regularly.

Notice of Research Study

This semester your instructor will be conducting a study looking at teaching and learning. The purpose of this study is to determine the factors that influence teaching effectiveness and learning. Your participation in this study will last for the duration of the current semester and will entail activities no different from the regular activities you would otherwise engage in as part of the course. If you would like more information, please do not hesitate to ask. If you would like to opt out of the study, please talk to me as soon as possible.

What is this course?

The modern world is driven by computers. In the last week, what was the longest stretch of time you went without interacting with a computer in some way? Think of cell phones, cars, Google, Facebook, Twitter, eBay, and Wikipedia. From research to real-world applications, computer scientists constantly discover ways to improve lives by creating bold new solutions that connect us to information and to each other in unexpected, forward-thinking ways. Few professions can turn ideas into realities so quickly. Few have such a direct and positive effect on people's everyday lives. In this course, we will study the foundations of computational thinking by designing and building solutions to meet the needs of the 21st century.

Class Section

- T/Th 2:30pm-3:45pm, Brockman Hall 101

Course Goals

The objective of this course is not to turn you into a programmer. Rather, this course is designed to give you an overview of computer science and teach you about problem solving in a way that utilizes computation. Upon completion of this course, you will have a feel for how to think about and structure problems in such a way that you can use a computer to help you solve them. Programming is necessarily a part of this process, but it is neither the only part nor the most important part.

Recommended Background

COMP 140 is an introductory course designed for any student interested in using computation to enhance their problem solving abilities. No prior experience in programming is necessary. Mathematics at the high school level (*e.g.*, algebra, trigonometric functions, geometry, elementary probability concepts) will be assumed.

Enrollment Restrictions

In the fall semester, preference is given to freshmen and sophomores. We will also do everything possible to accommodate all students who are using COMP 140 to satisfy one of their major requirements. Upperclassmen who express interest in the course may be able to enroll if there is space available after all of the freshmen have enrolled during O-Week.

Course Structure

This course will be organized around a series of approximately 2-week modules. Each module will introduce a real-world computational problem. You will then explore algorithms and implementations of computational solutions for those problems. Example modules include:

1. **Warmup: Circles.** An introduction to Python and computational problem solving.
2. **Spot it!** Solving more complex problems using mathematics and computation.
3. **Stock Prediction.** Using Markov models to analyze and predict the behavior of the stock market.
4. **Actor/Movie Relationships.** Using graph theory to analyze relationships between actors and movies.
5. **QR Codes.** Using error correcting codes to develop robust machine readable images.
6. **Sports Analytics.** Analyzing and predicting baseball team performance.
7. **Maps.** Searching for and finding good routes.

Grading

Your course grade will be broken down as follows:

1. **In-class participation** (20%)

   You will be graded on your participation in group activities during class. You must be present and on-time to every class in order to participate fully.

2. **Quizzes** (10%)

   There will be a short quiz before each class. You will have two attempts at each quiz (with no penalty). You will be able to see the explanations/hints immediately after you submit. There will also be several exercises on testing code that will be included in the quiz grade. You will be able to submit these testing exercises as many times as you would like before the deadline.

3. **Exams** (30%)

There will be a midterm and final exam.

4. **Homework** (40%)

   There will be 7 bi-weekly homeworks.

Note: Given the diverse set of backgrounds that students in this class have, we will also consider how much you have improved throughout the semester when assigning final grades.

Extensions

Extensions will only be granted under exceptional circumstances (such as medical emergencies). Mismanaging your time is not an exceptional circumstance, it is part of being a college student.

Late Submissions

The Canvas system has the notion of a "due date" and an "available until date". The "due date" is the real deadline by which you should turn in your work. The "available until date" is the hard deadline: the time after which the system will stop accepting submissions. There are late penalties applied when you submit between the due date and the hard deadline.

For assignments, after the due date passes, 10 points will be deducted from your score for each day late you submit the assignment. A "day" is 24 hours. Once the hard deadline passes, assignments will no longer be accepted by the system.

For quizzes, the due date and hard deadline are the same.

An important note on deadlines: If something is due at 8pm, then a submission will be considered late by Canvas as soon as it becomes 8pm. You should consider all deadlines to be the time **before** which you must submit your work. This is the only unambiguous definition of a deadline and will be upheld by the staff. Please make sure you submit early enough that Canvas will accept your submission before the deadline. Plan for computer delays, as they happen.

Disputes

If you believe your grade on an assignment is incorrect, you have **7 days** from when the assignment was returned to bring this to the attention of the staff. You should contact the Head TA with all such disputes. We recommend that you go to office hours and discuss your assignment with a TA before doing so (and CC that TA). Once it has been brought to our attention, we will take whatever steps and time are necessary to resolve the issue. If you do not bring up your dispute in e-mail to the Head TA within this 7 day period, your grade will stand. When sending email to request a re-grade, start the subject of the email with "COMP 140 regrade..."

Honor Code

We take the **Honor Code (http://honor.rice.edu/honor-system-handbook/)** very seriously. The work you submit for this class is expected to be the result of your own work. Attempting to take credit for someone else's work by turning it in as your own constitutes plagiarism, as defined by the Rice Honor Code.

Solutions: The solutions you turn in for all assignments and exams must be your own.

Past versions of the course: You are not allowed to use any material from past instances of this class that was not explicitly provided to you this semester. For example, you may not look at or use other students' work from past semesters, solutions provided in the past, or your own past work if you took the class previously. These are only examples. There are no exceptions to this policy.

Collaboration: You are allowed to discuss course material and general approaches to problems with your classmates and the staff, but you should never misrepresent someone else's work as your own. Work you do in class may be used and referred to in any manner by any member of the group who was present during that class.

Code: You are not allowed to copy code from **anywhere**. This includes, but is not limited to, your friends, classmates, and online resources.

This policy has several consequences, which include, but are not limited to:

- You may not use online forums (outside of the class forums) to ask for programming help.
- You may not ask anyone to give you a copy of their code or, conversely, give your code to another student who asks you for it (this includes showing them your code, reading them your code, e-mailing them your code, etc.). Similarly, you should not discuss your strategies to such an extent that you and your collaborators end up turning in exactly the same code. Discuss ideas together, but do the coding on your own.
- You may not look at solutions to assignments from previous runs of this course.
- You should neither look for nor post your solutions in any public forum, including, but not limited to, social media sites, Github, and other online forums.

Quizzes: You must complete the quizzes on your own. However, you may refer to any course materials while you take the quiz. After you have submitted your first of the two attempts on a quiz, you may discuss the contents and topics of the quiz as much as you like with others, but you should not share actual solutions.

Exams: Exams will be open notes and you will be able to refer to your own work that you have done in the course. Each exam will explicitly specify what resources you may use.

Students with Disabilities
If you have a documented disability that will impact your work in this class, please contact the instructor in the first two weeks of class to discuss your needs. Additionally, you will need to register with the Disability Support Services Office in the Allen Center.

Course Summary:

Date	Details	
Mon Jan 8, 2018	Pre-study Survey (https://canvas.rice.edu/courses/10448/assignments/60801)	due by 9am
Thu Jan 11, 2018	Quiz 1A (https://canvas.rice.edu/courses/10448/assignments/57378)	due by 9am
	Quiz 1A (https://canvas.rice.edu/courses/10448/assignments/60799)	due by 9am
Tue Jan 16, 2018	Quiz 1B (https://canvas.rice.edu/courses/10448/assignments/57392)	due by 9am
Thu Jan 18, 2018	Quiz 2A (https://canvas.rice.edu/courses/10448/assignments/57384)	due by 9am
Fri Jan 19, 2018	Circles (Python) (https://canvas.rice.edu/courses/10448/assignments/57399)	due by 8pm
	Circles (Writeup) (https://canvas.rice.edu/courses/10448/assignments/57400)	due by 8pm
Tue Jan 23, 2018	Post-study Survey (https://canvas.rice.edu/courses/10448/assignments/60802)	due by 9am
	Quiz 2B (https://canvas.rice.edu/courses/10448/assignments/57394)	due by 9am
	Testing Format (https://canvas.rice.edu/courses/10448/assignments/57419)	due by 8pm
Thu Jan 25, 2018	Quiz 2C (https://canvas.rice.edu/courses/10448/assignments/57386)	due by 9am
Tue Jan 30, 2018	Quiz 2D (https://canvas.rice.edu/courses/10448/assignments/57393)	due by 9am
Thu Feb 1, 2018	Quiz 3A (https://canvas.rice.edu/courses/10448/assignments/57379)	due by 9am
Fri Feb 2, 2018	Spot it! (Python) (https://canvas.rice.edu/courses/10448/assignments/57414)	due by 8pm
	Spot it! (Writeup) (https://canvas.rice.edu/courses/10448/assignments/57415)	due by 8pm
Tue Feb 6, 2018	Quiz 3B (https://canvas.rice.edu/courses/10448/assignments/57397)	due by 9am
	Testing Stringtime (https://canvas.rice.edu/courses/10448/assignments/57420)	due by 8pm
Thu Feb 8, 2018	Quiz 3C (https://canvas.rice.edu/courses/10448/assignments/57376)	due by 9am

Date	Details	
Tue Feb 13, 2018	Quiz 3D (https://canvas.rice.edu/courses/10448/assignments/57388)	due by 9am
Fri Feb 16, 2018	Stock Prediction (Python) (https://canvas.rice.edu/courses/10448/assignments/57416)	due by 8pm
	Stock Prediction (Writeup) (https://canvas.rice.edu/courses/10448/assignments/57417)	due by 8pm
Mon Feb 19, 2018	Midterm Exam (https://canvas.rice.edu/courses/10448/assignments/57409)	due by 10pm
Thu Feb 22, 2018	Quiz 4B (https://canvas.rice.edu/courses/10448/assignments/57383)	due by 9am
	First Half Participation (https://canvas.rice.edu/courses/10448/assignments/57402)	due by 5pm
Mon Feb 26, 2018	Testing Blackjack3 (https://canvas.rice.edu/courses/10448/assignments/57418)	due by 8pm
Thu Mar 1, 2018	Quiz 4C (https://canvas.rice.edu/courses/10448/assignments/57390)	due by 9am
Tue Mar 6, 2018	Quiz 4D (https://canvas.rice.edu/courses/10448/assignments/57382)	due by 9am
Thu Mar 8, 2018	Quiz 5A (https://canvas.rice.edu/courses/10448/assignments/57385)	due by 9am
Fri Mar 9, 2018	Kevin Bacon Game (Python) (https://canvas.rice.edu/courses/10448/assignments/57405)	due by 8pm
	Kevin Bacon Game (Writeup) (https://canvas.rice.edu/courses/10448/assignments/57406)	due by 8pm
Tue Mar 13, 2018	Quiz 5B (https://canvas.rice.edu/courses/10448/assignments/57391)	due by 9am
Thu Mar 15, 2018	Quiz 5C (https://canvas.rice.edu/courses/10448/assignments/57396)	due by 9am
Tue Mar 20, 2018	Quiz 5D (https://canvas.rice.edu/courses/10448/assignments/57395)	due by 9am
Thu Mar 22, 2018	Quiz 6A (https://canvas.rice.edu/courses/10448/assignments/57389)	due by 9am
Fri Mar 23, 2018	QR Codes (Python) (https://canvas.rice.edu/courses/10448/assignments/57410)	due by 8pm
	QR Codes (Writeup) (https://canvas.rice.edu/courses/10448/assignments/57411)	due by 8pm

Date	Details	
Tue Mar 27, 2018	Quiz 6B (https://canvas.rice.edu/courses/10448/assignments/57387)	due by 9am
Thu Mar 29, 2018	Quiz 6C (https://canvas.rice.edu/courses/10448/assignments/57377)	due by 9am
Tue Apr 3, 2018	Quiz 6D (https://canvas.rice.edu/courses/10448/assignments/57381)	due by 9am
Thu Apr 5, 2018	Quiz 7A (https://canvas.rice.edu/courses/10448/assignments/57380)	due by 9am
Fri Apr 6, 2018	Sports Analytics (Python) (https://canvas.rice.edu/courses/10448/assignments/57412)	due by 8pm
	Sports Analytics (Writeup) (https://canvas.rice.edu/courses/10448/assignments/57413)	due by 8pm
Tue Apr 10, 2018	Quiz 7B (https://canvas.rice.edu/courses/10448/assignments/57398)	due by 9am
Thu Apr 19, 2018	Full Semester Participation (https://canvas.rice.edu/courses/10448/assignments/57403)	due by 11:59pm
Fri Apr 20, 2018	Map Search (Python) (https://canvas.rice.edu/courses/10448/assignments/57407)	due by 8pm
	Map Search (Writeup) (https://canvas.rice.edu/courses/10448/assignments/57408)	due by 8pm
	Full Semester Participation (https://canvas.rice.edu/courses/10448/assignments/57404)	due by 11:59pm
Fri Apr 27, 2018	Final Exam (https://canvas.rice.edu/courses/10448/assignments/57401)	due by 10pm